ERDC
Engineer Research and Development Center

Joint Rapid Airfield Construction

Site Selection and Assessment

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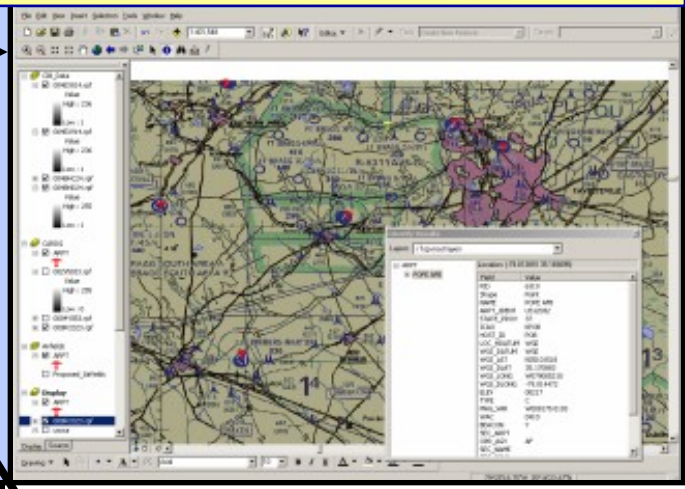
Ft. Bragg, North Carolina

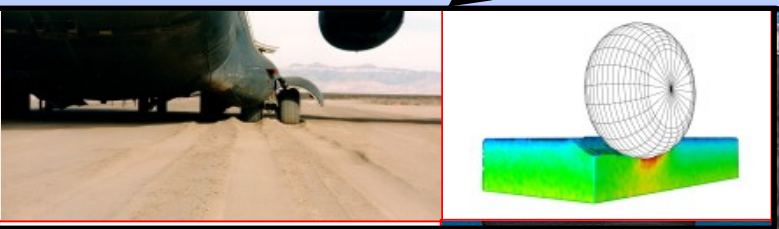
Joint Rapid Airfield Construction

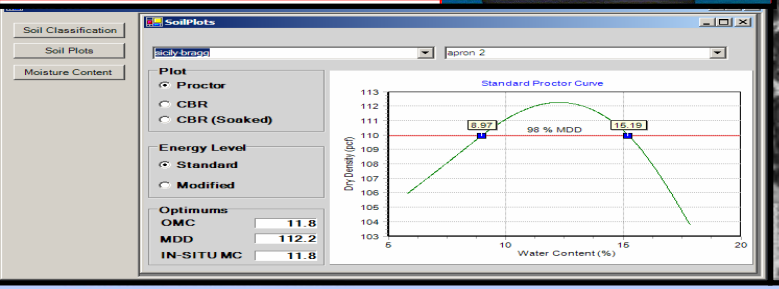
Site Selection and Assessment

To Rapidly Assess Site Potential for Contingency Airfields

- Advanced Geospatial Terrain Analysis
- Rapid Material Characterization
- Rapid Constructability Estimation
- Improved Airfield Performance Prediction







Joint Rapid Airfield Construction

What once took days or we

- Bulky test equipment
- Lack of on-site resources
- Large troop requirement
- Time-intensive procedures

Can now be done in hours

- Portable small-scale test equipment
- On-site resources
- Small troop requirement (Remote)
- Time saving procedures

Multiple sites can now be evaluated

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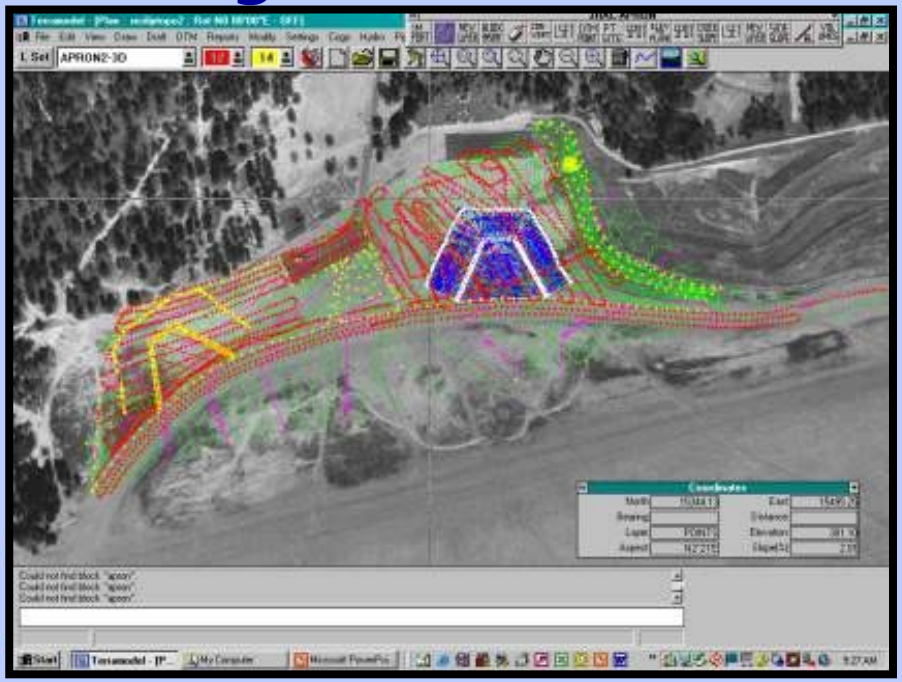
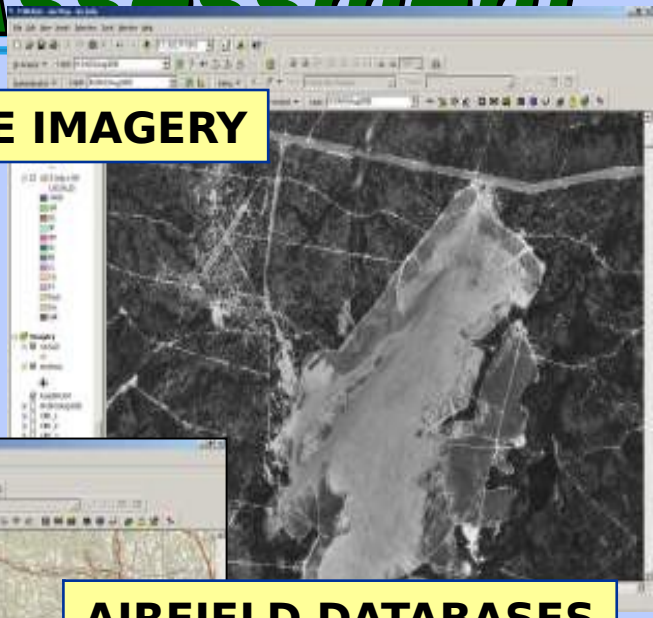
Site Selection and Assessment

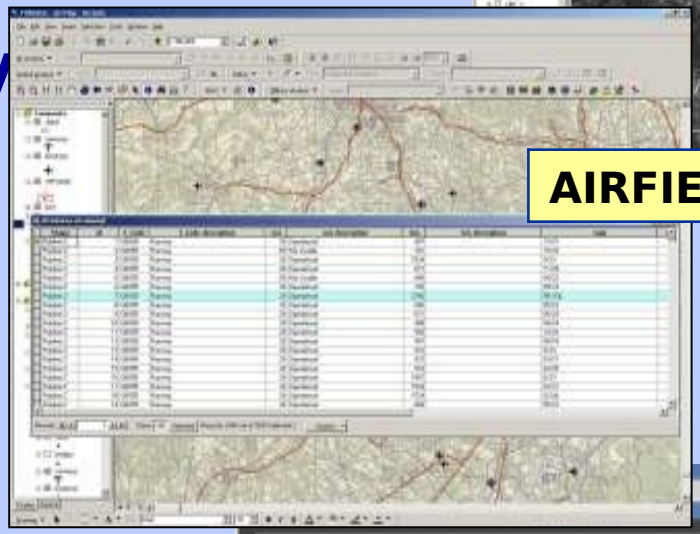
Progress to Date :

- **GIS remote site selection capability**
  - Construction estimation
- **Topographic GPS survey using RAVEN**



SATELLITE IMAGERY





AIRFIELD DATABASES

TCMS

Site Selection and Assessment

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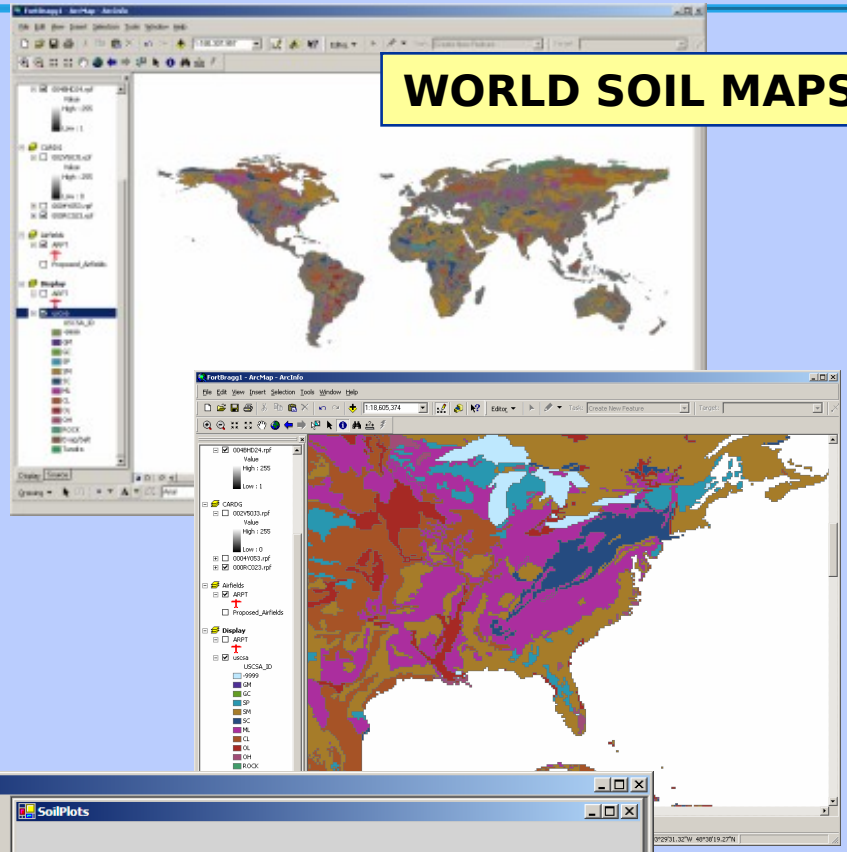
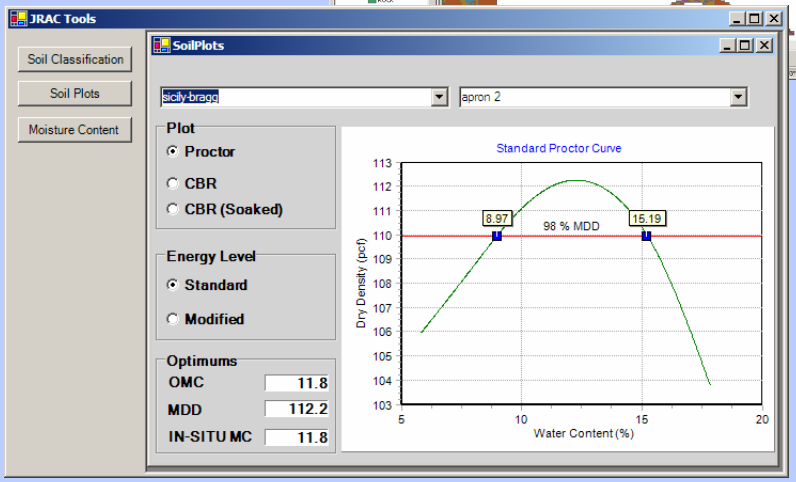
Progress to Date :

- Rapidly determine field soil type, strength and constructability
- Assess performance of current and future

WORLD SOIL MAPS



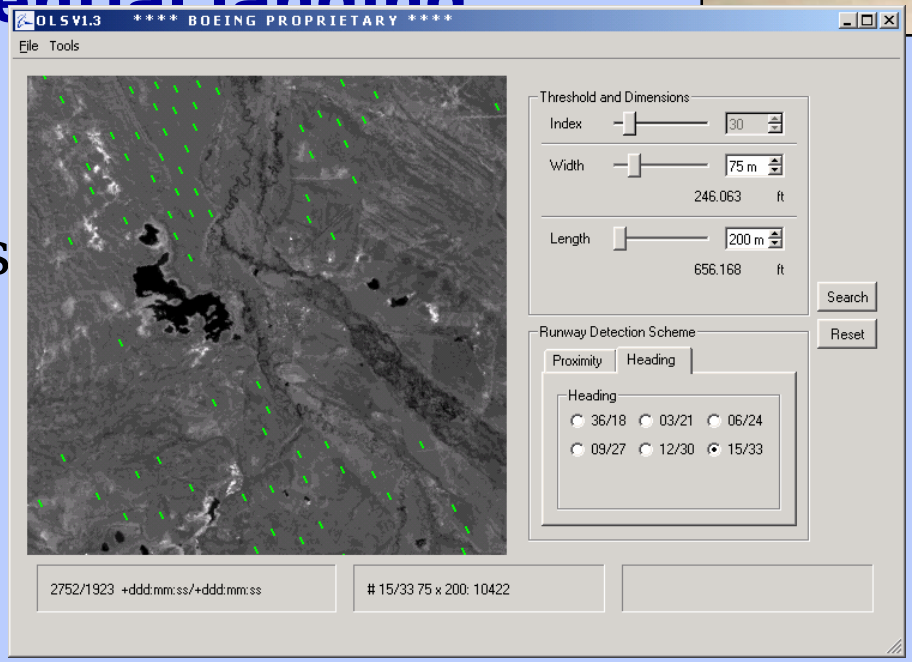
FIELD SOIL LABORATORY



Site Selection and Assessment

Progress to Date:

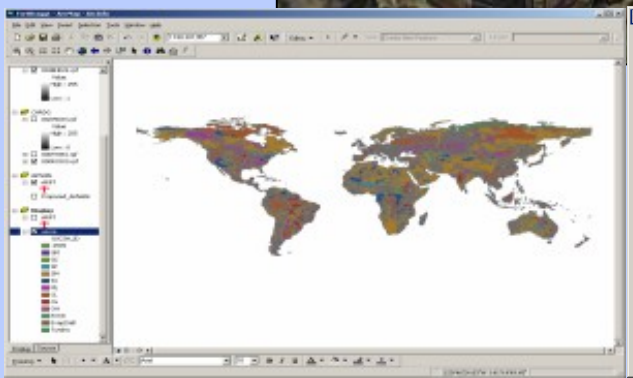
- **Identified key future devices for hardened pavement assessment**
  - Portable Falling Weight Deflectometer
- **Boeing site selection software to predict potential landing areas**
  - Terrain
  - Wind Vectors
  - Moisture

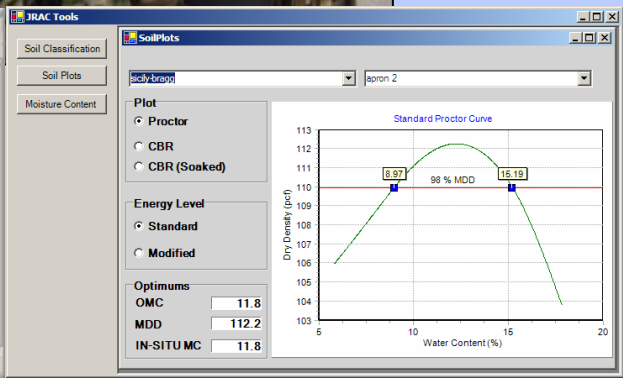


Site Selection and Assessment

'04 Demo:

- **Expedient Soil Laboratory (1 Hour per Soil)**
  - ***Provides Laboratory Level Data in the Field***
    - ***Grain Size Distribution***
    - ***Microwave Moisture Contents (5 min. each vs. 24 hrs.)***
  - ***In-situ and Design Strength and Construction Requirements***
    - ***Database of Existing Airfield Soil Properties***





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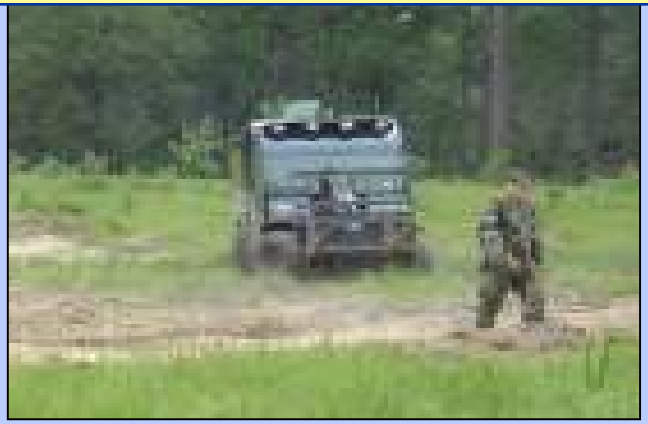
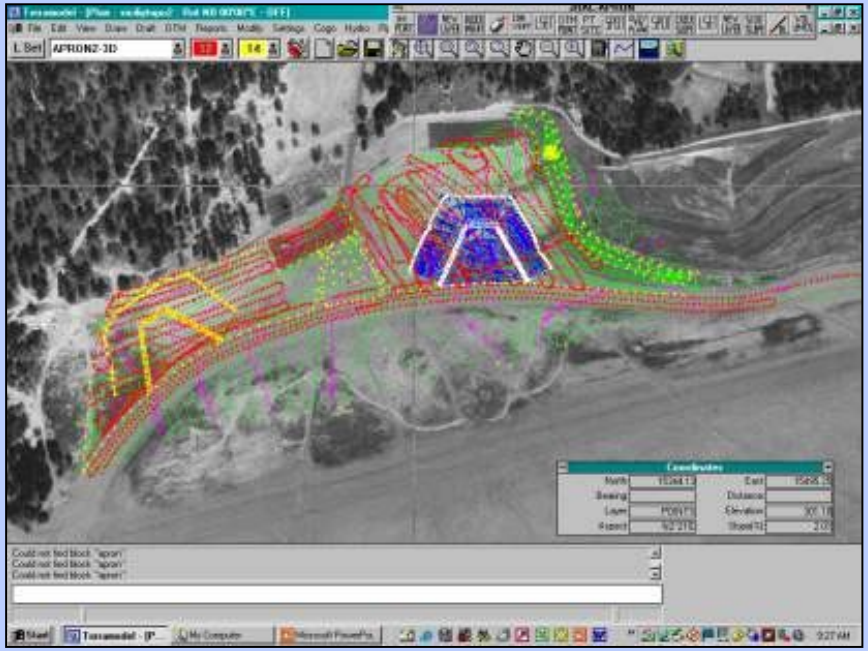
'04 Demo:

- RAVEN GPS Topographic Survey Technology
- On-site design capability
- TeleEngineering system transfer of RAVEN Data

2 SOLDIER UNIT TO OPERATE



BLACKOUT OPERATION CAPABILITY



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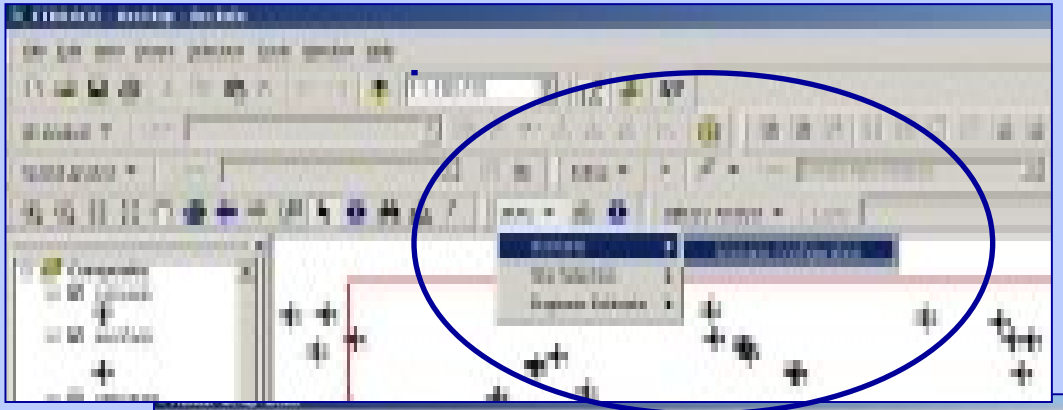
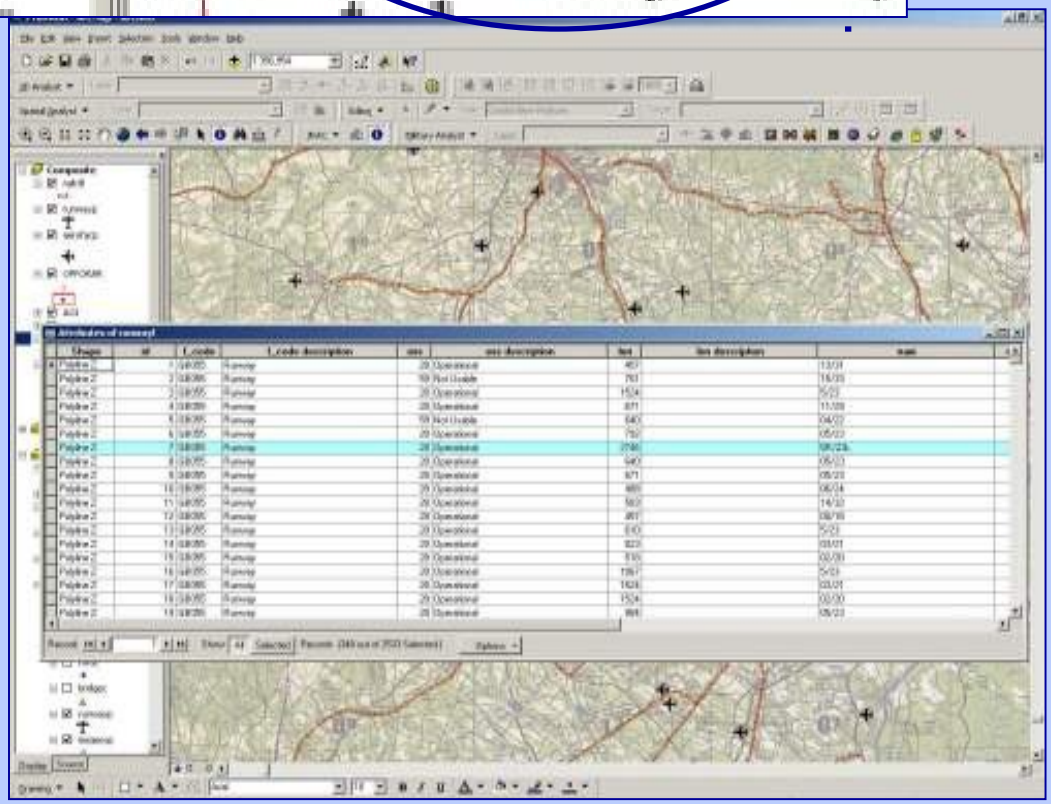
'04 Demo:

GIS Technology

- Terrain Visualization
- Queries for relevant field properties
  - *Location to Lines of Communication*
  - *Railroads, Highways, Streams*
  - *Throughput for Mission Use*
- Identification of Existing Airfields
  - *Surfaced or Unsurfaced*
  - *Length*
  - *Condition Rating*
  - *Current MOG Capability*





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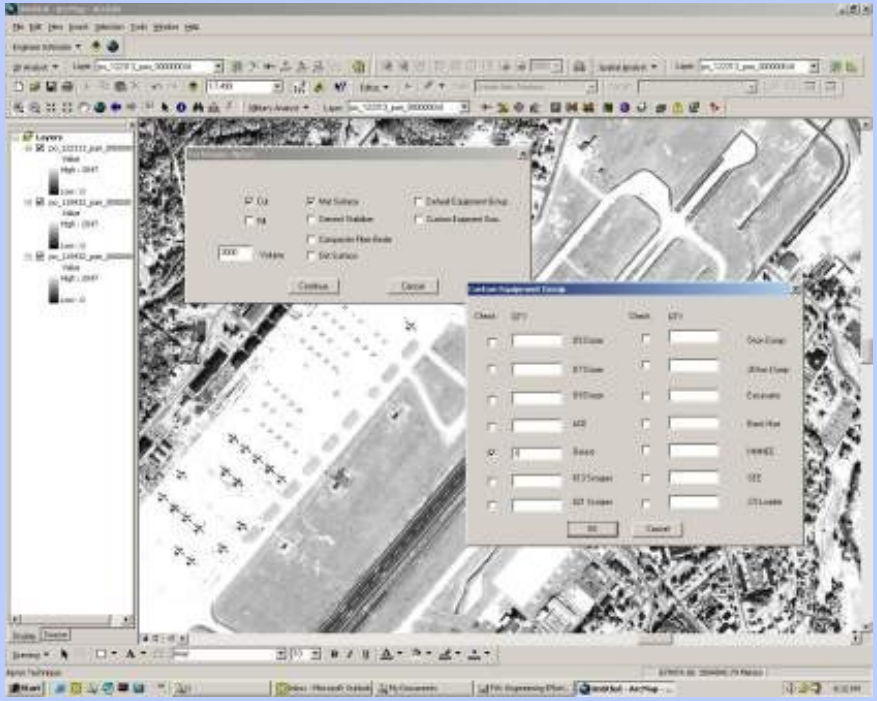
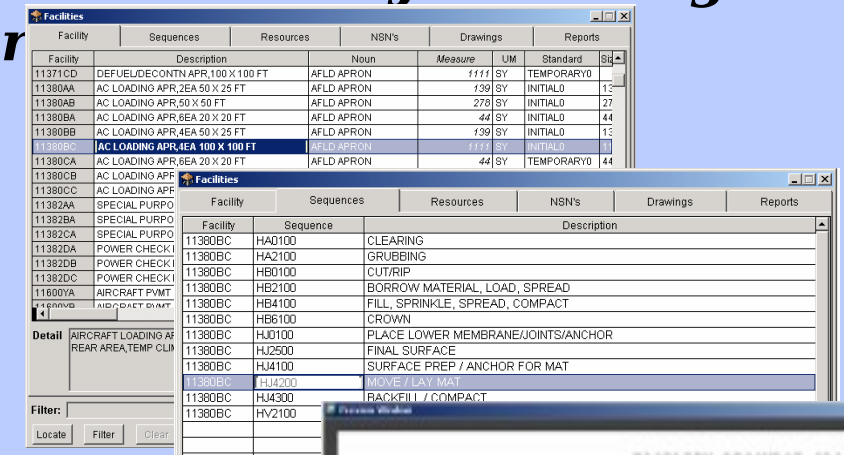
'04 Demo:

- **Construction Management System**
  - ***Engineering Estimates***
  - ***TCMS system retrofitted for more mobile JRAC design r***





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Site Selection and Assessment

Products:

- **Soil Classification Technology**
  - More advanced, reliable system
  - Statistics for site variability
- **Remote Site Assessment Technology**
  - Integrated Site Assessment Tools
  - Construction, Strength and Remote Assessment
- **Performance and deterioration predictions of constructed and in-place airfields**
  - Advanced analytical systems for C-17 response
- **Software Interface**

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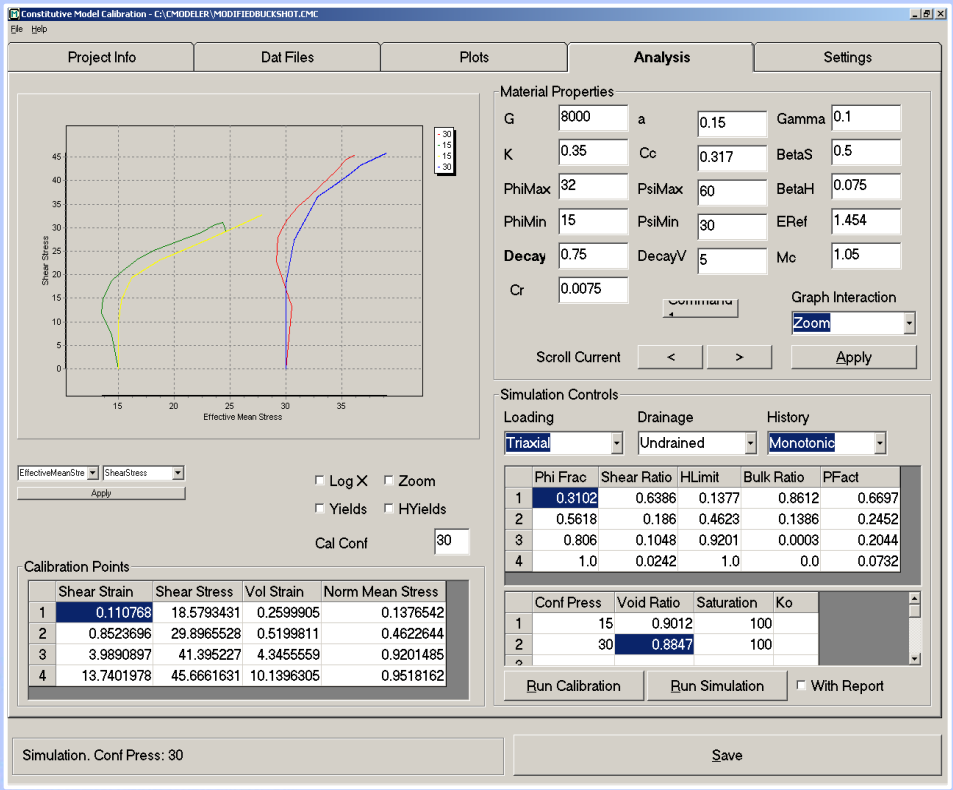
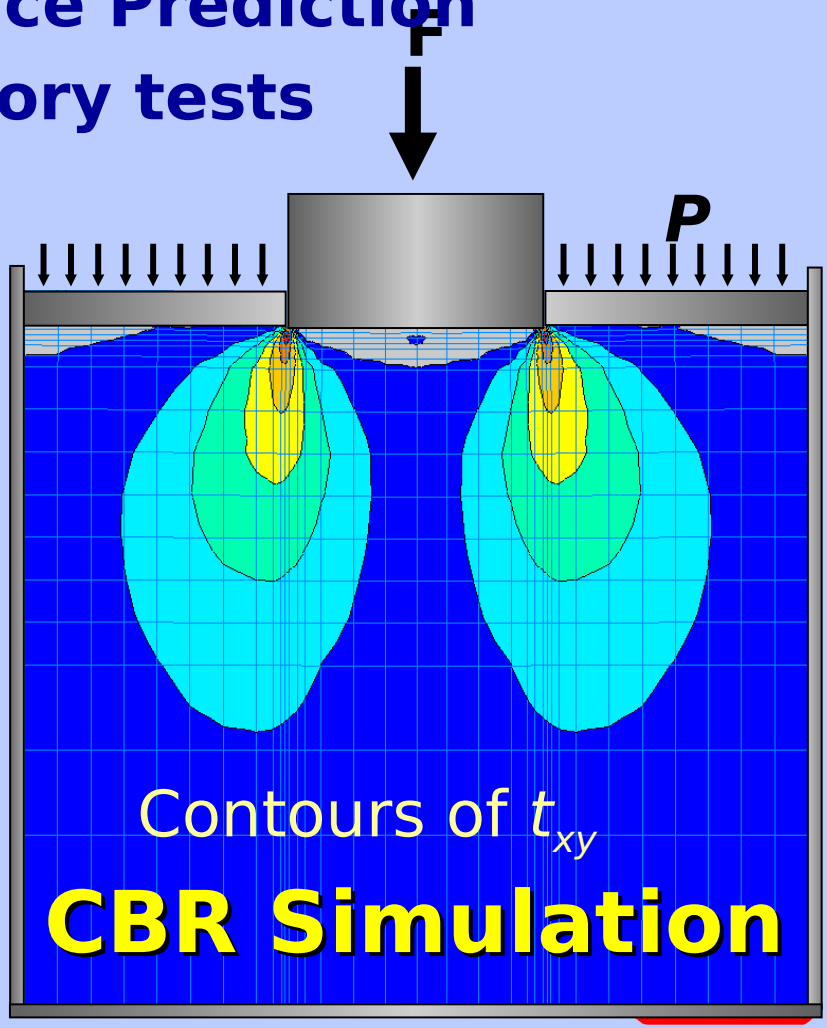
Site Selection and Assessment

Products:

Advanced Analytical Performance Prediction

- Digital simulations of laboratory tests
- Design for in-situ material

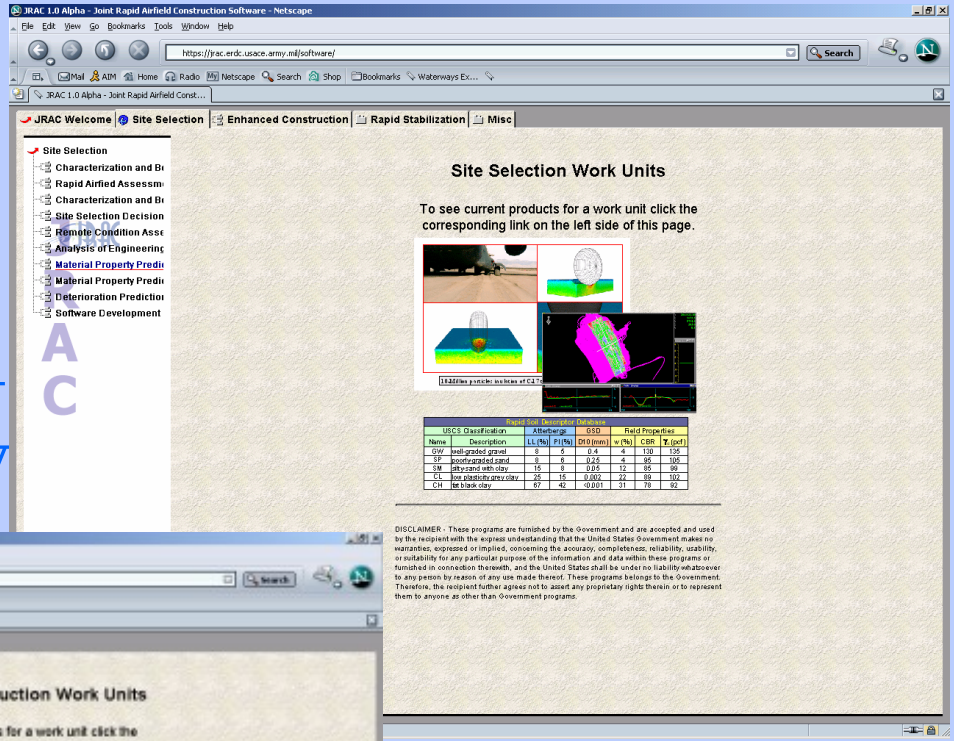




Site Selection and Assessment

Products:

- **Software Interface**
  - Menu Driven
  - Simplified Task Structu
  - Enter system at any lev


JRAC 1.0 Alpha - Joint Rapid Airfield Construction Software - Netscape
JRAC Welcome
Site Selection
Enhanced Construction
Rapid Stabilization
Misc
Site Selection
Site Selection Work Units
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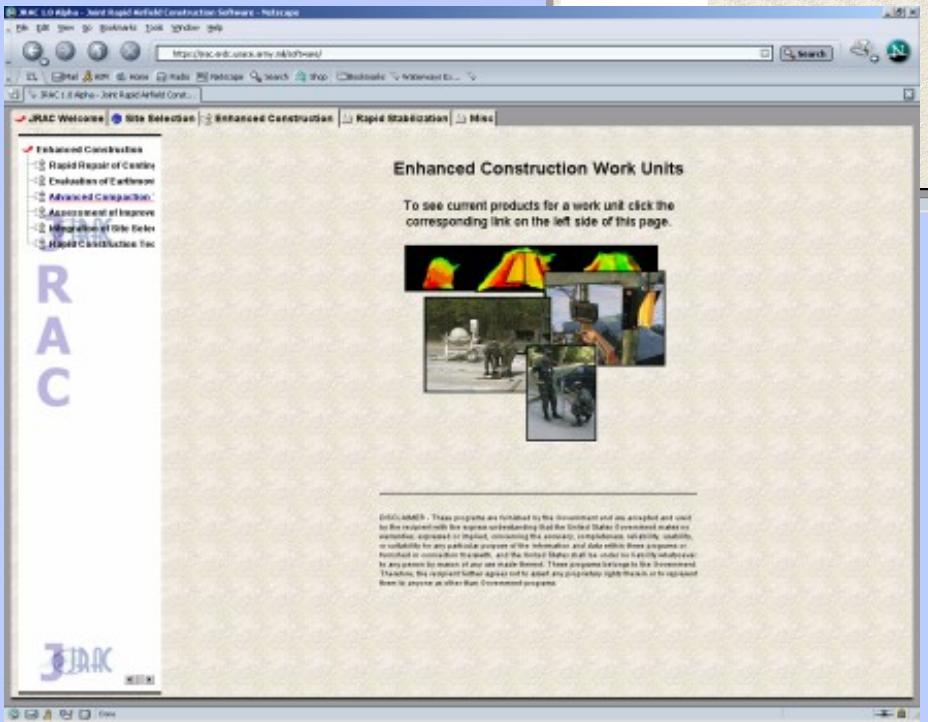
JRAC Welcome
Site Selection
Enhanced Construction
Rapid Stabilization
Misc
Enhanced Construction
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